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Reducing Government Energy Waste

Introduction

The Alliance to Save Energy is a bipartisan, nonprofit coalition of more than 120 business, government, environmental and consumer leaders. The Alliance's mission is to promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security. The Alliance, founded in 1977 by Senators Charles Percy and Hubert Humphrey, currently enjoys the leadership of Senator Mark Pryor as Chairman; Duke Energy CEO James E. Rogers as Co-Chairman; and Representatives Ralph Hall, Edward J. Markey, and Zach Wamp along with Senators Jeff Bingaman, Susan Collins, Larry Craig, and Byron Dorgan as its Vice-Chairs. Attached to this testimony are lists of the Alliance's Board of Directors and its Associate members.

The Alliance has promoted effective federal energy management for many years. Recently we formed a new Board committee, the Government Energy Leadership Action Team, dedicated to achieving dramatic energy savings throughout the federal government. Thus the Alliance is pleased to testify at this important hearing on energy use in the federal government.

I will begin with some comments on the importance of energy efficiency in federal facilities and operations, in order to save taxpayers' money, reduce the government's energy-related greenhouse gas emissions, and provide a powerful model for action by other energy users. Next, we will turn to specific provisions in current laws and policy guidance, emphasizing the importance of follow-up actions by Congress, the Administration, and federal agencies themselves to assure that energy saving activities are adequately funded and effectively implemented – and the results tracked and reported in a timely way. Last, I will suggest some further opportunities to extend federal energy-efficiency initiatives, building on the accomplishments to date and establishing the federal government as a true market leader in transforming the overall market for energy-efficient products and services

Federal Energy Use and Waste

The United States federal government is the single largest consumer, and the single largest waster, of energy in the world. In 2005 the federal government overall used 1.6 quadrillion Btu of “primary” energy (including the fuel used to make the electricity it consumed), or 1.6 percent of total energy use in the United States. Taxpayers in this country paid \$14.5 billion for that energy.

Almost half of that energy, and more than half of the cost, was for vehicles and equipment, primarily for military planes, ships, and land vehicles. The rest, 0.9 quadrillion Btu at a cost of \$5.6 billion, was for heating, cooling, and powering more than 500,000 federal buildings around the country.

Repeated efforts over the last two decades have resulted in dramatic energy and cost savings, but large cost-effective savings remain available. Overall federal primary energy use decreased by 13 percent from 1985 to 2005, and the federal energy bill decreased by 25 percent in real terms, even after the 27 percent jump in fuel prices in the United States in 2005. Federal “standard” buildings reduced their primary energy intensity by about 13 percent, while “site” energy declined by 30 percent (“Standard” buildings are those not exempted due to industrial uses or national security needs; “energy intensity” is energy use per square foot of building space; “site” energy is measured at the point of use, excluding electricity system losses). Congress and the president have set even more aggressive targets for future savings that could yield well over \$1 billion in energy cost savings each year from federal buildings alone.

It is important to place this savings potential in context. As the world’s largest energy consumer, the federal government could play a unique role as a market transformer through the early adoption of new, energy-efficient technologies and practices. Still, the federal government accounts for just two percent of U.S. oil use and a similar portion of U.S. greenhouse gas emissions. Thus, addressing federal energy use is but one of many congressional actions that are necessary to solve the many critical energy issues facing our country. A number of federal policies and funding decisions, such as appliance efficiency standards, tax incentives, and energy-efficiency research and development must be undertaken – in addition to ending federal energy waste – if we are to ensure Americans a sustainable energy future.

Notwithstanding the need for these broader actions, the federal government’s own energy-savings potential is significant, the taxpayer savings are worth pursuing, and it is valuable to establish the government as a successful role model for actions by state and local governments, the private sector, and consumers in general. There is extraordinary interest in Congress right now in addressing federal energy use, from greening the Capitol buildings to improving the energy efficiency of weapons and support systems that will in turn reduce the need for fuel supply convoys in Iraq. I will talk first about implementing, overseeing, and funding the policies that are already in place, and then about new initiatives to make the government even more efficient.

Meeting Current Federal Requirements and Targets

There already are a number of targets, standards, and requirements intended to reduce energy use by federal agencies. Together, they set a reasonably ambitious agenda for reducing energy use, at least in standard federal buildings, but many of these requirements have been initiated within the last two years and not yet fully implemented; achieving them remains a challenge. Among the more important of these existing requirements are:

- Agencies were required by 2005 to install in federal buildings all energy and water conservation measures with payback periods of less than ten years (Energy Policy Act of 1992, Sec. 152). This has not been fully accomplished.
- All new federal buildings must be designed to achieve energy use at least 30 percent below the national model building energy codes (EPA 2005, Sec. 109), if such improvements are cost-effective. The Department of Energy (DOE) just issued interim final rules in December 2006.
- Agencies must purchase efficient Energy Star or FEMP-designated products unless suitable energy-efficient products are not available or are not cost-effective in a specific case (EPA 2005, Sec. 104). DOE has not yet issued final regulations to implement this provision, and the federal supply agencies, GSA (General Services Administration) and DLA (Defense Logistics Agency) continue to supply their federal customers with inefficient as well as efficient energy-using products.
- All federal buildings must be metered for energy use by 2012, using advanced meters that record electricity use by time when practicable (EPA 2005, Sec. 103). DOE issued metering guidelines in 2006, but limited the metering requirements to electricity use, excluding natural gas, steam, and hot or chilled water. Most agencies have prepared implementation plans, but will need funding from appropriations or alternative finance contracts to implement these metering plans.
- Each agency is to reduce the energy use intensity of its buildings by 3 percent per annum, or 30 percent by 2015 (Executive Order 13423). Agencies mostly met earlier targets culminating in a 30 percent reduction between 1985 and 2005; however, total energy use reductions have been smaller as energy-intensive facilities are excluded from these targets and as the savings targets are interpreted as applying to site energy – thus excluding losses from the growing use of electricity.
- Each agency is to reduce the water use intensity of its buildings by 2 percent per year or 16 percent by 2015 (EO 13423). This is the first quantitative target for water efficiency in federal buildings.
- Each agency is to reduce the petroleum-based fuel use by its vehicle fleet by 2 percent per year through 2015 (EO 13423).

The most important step in reducing federal energy use is to **implement fully the policies that are already in place**, including those listed above for federal building standards, procurement

requirements, savings targets, cost-effectiveness guidelines, and others. Energy use and decision-making are dispersed among many people at dozens of federal agencies. Agency leaders, of course, have many mission responsibilities, financial constraints, legal requirements, stakeholder demands, and impending crises that compete for attention. Energy efficiency must be adopted as a primary goal and embodied in action throughout the government if we are to meet the targets already established.

For example, while procurement of energy-efficient products has been required since a 1991 Executive Order and by law in EPCA 1992, that requirement has never been fully implemented in the complex processes and multiple paths of federal procurement. Product specifications in competitive solicitations often do not include the efficiency requirements. GSA product schedules still include inefficient and outdated equipment, including inefficient air conditioners, refrigerators, lighting, and other products.

The requirement in the new Executive Order 13423 that each agency appoint a senior civilian officer to be in charge of implementing the Order may help focus attention on energy efficiency. However, the responsibilities of that designated official are now broadened to include other aspects of environmental management, not just energy efficiency. Moreover, government officials may be held responsible for an energy-efficiency project gone awry, but no one is ever held responsible for wasted energy due to inaction. There may be debate about the amount of energy savings from a project, but no one ever measures the energy not saved by failing to make a new building “green” or from delays in replacing old equipment with the best new technologies.

We believe Congress’s first duty and most important role in improving federal energy management is effective and sustained oversight. Through requiring regular reports, questioning agency heads at hearings, sending letters to agencies in committee jurisdictions, and/or initiating Government Accountability Office studies, Congress can focus the attention of key officials at all agencies on energy use, and demand accountability for meeting energy savings and cost-effectiveness targets.

This continuing oversight also helps keep the attention of top agency officials focused on energy efficiency, and makes it easier for energy managers in the field to get a positive response, from their own chain of command, to energy-saving ideas and recommended actions.

Funding for Federal Energy-Efficiency Measures

While energy-efficiency measures save taxpayers money in lower federal energy bills, they often require an up-front expenditure. It is already government policy to look at total life-cycle cost, not just first cost, when making decisions on new buildings, retrofits, equipment and vehicle purchases, weapon design, and more. Life-cycle cost considers both the initial purchase price of a product **and** the estimated future costs of energy use, operation and maintenance (O&M), and repair over the life of the product. This life-cycle-cost perspective is used for some large capital and military systems procurements, but not all. And, regardless of policy, in practice agencies trying to use this approach face hard limits on the availability of appropriated funds to pay the up-front costs for an energy-saving investment, along with many competing priorities.

Billions of dollars of investment will be needed to meet the current energy targets and reap the associated energy savings. However, in recent years annual appropriations for energy efficiency, water conservation, and renewable energy projects in existing federal buildings have ranged from only about \$100 million to \$300 million. But in order to meet the new targets and conduct all cost-effective improvements several times this level of investment—\$1–2 billion each year—is needed. Funding for energy efficiency through appropriations must be increased. If we do not provide more funding for energy-efficiency measures, federal agencies may fail to meet their energy targets and are assured of spending even more money on energy bills. We must invest more to save more.

Increased funding also is needed for DOE's Federal Energy Management Program (FEMP), the primary source of technical assistance, training, and policy coordination for energy managers throughout the federal agencies. FEMP is the office responsible for issuing and updating rules, guidelines, and reports to implement the many legal mandates. FEMP funding has been cut for years, despite increasing responsibilities, and its technical resource base of DOE National Laboratory experts and outside contractors has been greatly curtailed. More funding and more management attention are needed to restore this vital program.

But if we focus only on increasing appropriations, while we wait we will be letting money escape out the window (and also out of poorly insulated walls and roofs!). That's why Congress has authorized the use of private, third-party financing so that agencies can upgrade buildings with no up-front cost to the government. Energy Service Companies (ESCOs) finance and help implement energy-saving projects through Energy Savings Performance Contracts (ESPCs). The contractor is paid out of the resulting stream of energy bill savings. By law, the savings must be at least as great as the contractor payments—if the savings are not realized, the contractor does not get paid. Many electric and gas utilities also offer financing for energy-efficiency projects through Utility Energy Service Contracts (UESCs), as well as rebates and technical assistance to federal agencies as part of their demand-side management (DSM) programs. Similar to ESPCs, utility investments under UESCs are repaid from the utility bill savings resulting from the projects.

ESPCs and UESCs used to provide more than \$500 million per year for energy-efficiency investments in federal buildings. But in September 2003 authority to enter into new ESPCs lapsed, and despite being re-authorized by Congress in 2004 and 2005, the use of these innovative and effective financing tools has not recovered to their earlier levels. In fiscal year 2005 ESPCs provided \$97 million, and UESCs \$76 million.

A number of barriers have prevented ESPCs and UESCs from reaching their full potential. Ultimately, successful use of such innovative financing requires a champion—a committed agency official who is willing to “stick his neck out”—to overcome bureaucratic bottlenecks, lack of support, and the concerns over audits and other special scrutiny. If the projects fall short of expected savings goals, they are criticized. In contrast, energy-efficiency projects implemented with appropriated funds receive comparatively little oversight. And, as I said before, there is no systematic process of oversight for facilities in which the improvements are never made and that are allowed to simply go on wasting energy.

In short, government energy managers are seldom rewarded, either financially or professionally, for achieving energy savings, nor is there much risk in failing to seize energy-saving opportunities. Proper oversight of ESPC and UESC contracts is needed, but there must also be recognition of the major costs of **inaction**. The focus should be on maximizing energy and cost savings, rather than requiring perfection and avoiding any possible risk in the use of alternative financing and the introduction of promising new ways to save energy.

A New Paradigm for Improvements to Existing Federal Buildings

In addition to oversight and funding of existing federal energy management policies and programs, new legislation is needed to expand the scope of federal energy management and to make the federal government a true example of leadership in energy efficiency. It is important, however, that these new initiatives not reduce attention and funding for existing activities, but support and build on them.

In order to make the necessary increase in investment in energy savings in existing federal buildings, we think that a new paradigm and a new structure are needed. Energy waste should not be allowed to continue until appropriations happen to be available or an energy manager is willing to take the effort and the risk needed to push through an ESPC or UESC. Federal agencies should not wait to take all cost-effective steps to reduce energy use. Appropriations should be increased, but federal agencies should also make more aggressive use of alternative financing through ESCO and utility performance contracts, to implement all energy-saving measures that make economic sense. And regardless of the funding source, agencies must have in place effective procedures for operations and maintenance, measurement and verification of savings, and monitoring and benchmarking to make sure the measures are implemented correctly and continue to work as intended.

Thus, we recommend the following package of policies:

- All large federal buildings and facilities should conduct comprehensive energy and water savings evaluations (“energy audits”) to identify and prioritize all economic opportunities for investments to reduce energy and water use. These evaluations should consider both capital investments, such as a new boiler or chiller, and operational improvements, such as checking and adjusting lighting or mechanical system controls. Updated energy audits and building system diagnostics should be conducted every few years.
- Agencies should implement all measures identified in the energy and water evaluations that have a simple payback of fifteen years or less. The calculation of cost savings should consider not only energy and water costs but also reduced costs of building operations, maintenance, repair, and equipment replacement. “Externality” costs, such as the added value of avoided air pollution or reduced greenhouse gas emissions, could also be incorporated in these payback estimates as an adder to the value of energy saved.
- It is critical that the agencies not only make the capital investments but also make sure that the measures work, and keep on working. Start-up commissioning, and periodic re-commissioning, are an essential part of all measures to ensure that they work as intended –

followed by effective operation, maintenance, and repair as well as measurement and evaluation of savings.

- Sustained oversight is needed to ensure that every agency is identifying all cost-effective energy savings opportunities, investing in them with either appropriated funds or third-party financing, and following through with good commissioning, O&M, and tracking of savings. While congressional action is important, the first level of oversight should be agency self-certification through a web-based tracking system that makes both the process and the agency's progress transparent to all. Larger federal buildings and facilities should also benchmark their energy and water use, so all can see how well they are doing. And implementation of these requirements should be incorporated in the agency energy scorecards that the Office of Management and Budget already prepares.
- Both the energy-savings evaluations and the measures themselves should be funded through a combination of increased appropriations and private financing through ESPCs and UESCs. To that end, a number of arbitrary impediments on ESPCs should be removed by: permanently extending authority for federal agencies to enter into ESPCs; allowing the combined use of appropriations and performance contracts to fund a single project; and ending any self-imposed agency caps on the duration of ESPC contracts (i.e., projects should "dig deeper" to include all measures that are life-cycle cost-effective, up to the statutory 25-year ESPC limit) and on total obligations under ESPCs.

Together, we think this set of policies could help ensure that all large federal facilities identify and implement actions to reduce their energy and water waste, that initial funding is available for all cost-effective measures, and that the necessary follow-up is done – regardless of the funding source – to ensure that the expected savings are actually realized.

Expanding the Scope of Federal Energy Savings Initiatives

Almost all of the current federal requirements and programs focus on energy use in federally owned "standard" buildings, with less attention paid to "energy intensive" facilities that house industrial processes, as well as other "exempt" facilities (often exempted for national security reasons). This focus on fixed facilities **neglects more than half of all energy use** by the federal government, for transportation and mobile equipment. Also overlooked is the energy use and potential savings by federal contractors, many of whom perform "outsourced" functions that would otherwise be the direct responsibility of a federal agency. The Alliance believes that several additional measures would greatly enhance the potential of wringing out energy waste by the government. Among the potential ways for capturing these savings are:

- A government-wide energy savings target or a savings target aimed specifically at all vehicles and equipment ("mobility" energy). In addition to the target for federal buildings, Executive Order 13423 includes 10 percent reduction in oil consumption by federal fleet vehicles – but if this is narrowly interpreted to apply to wheeled vehicles it represents only about 10% of total federal mobility energy, the vast majority of which is used for aircraft, ships, and military "deployed systems." In addition, the executive order rescinded the only target that directly addressed greenhouse gas (GHG) reductions for the federal sector: Executive Order 13123 previously called for a 30 percent reduction of GHG emissions

from federal buildings, from 1990 to 2010. If Congress chooses to reinstate a similar performance target for federal agencies, it should apply to energy-related GHG emissions from **all** federal energy use, including buildings, vehicles, and equipment.

- Energy savings requirements for buildings leased by the federal government. The current building standards and energy-saving targets apply only to government-owned buildings. However, the government also leases a large number of buildings, many of which are built specifically for use by federal agencies based on long-term lease commitments. One way or another, federal taxpayers pay for the energy used in these buildings, and the federal government should demand that they be energy-efficient. Other buildings, such as privatized military housing, also are built for the government and often with government assistance, and should be required to be energy-efficient as well.
- Smart growth or “locational efficiency” policies. Just as building design impacts the energy use in federal buildings, the location of federal buildings can have a dramatic impact on the energy use of employees in commuting and other driving. This impact, for good or bad, is often multiplied as federal buildings often attract additional residential and commercial development and infrastructure. Moving federal facilities to far suburbs or other areas outside of cities encourages sprawl, more driving, and greater oil use. Requiring a transportation energy impact assessment for all major new federal facilities could positively influence decisions on where to locate major new or expanded federal facilities.
- A directive to encourage federal contractors to improve their own energy efficiency. Some industry leaders, including Wal-Mart, are not only dramatically reducing their own energy use but also requiring their suppliers to improve efficiency, both to lower costs and reduce environmental impacts. Federal agencies could encourage and assist their large contractor base to reduce their own energy use, through procurement preferences or requirements.
- Application of energy-saving policies, requirements, and savings targets to Congress. Congress could take an important symbolic step by applying all the agency energy savings targets and requirements to its own buildings, vehicle use, and procurement—making the Capitol complex a model for energy efficiency.

Successful federal energy management also can further vital federal goals by influencing others to use energy wisely. The federal government could:

- Challenge state and local governments and major businesses to match the federal commitment to energy efficiency. Many federal programs, including ESPCs and procurement requirements, have been models for other levels of government. The federal government should challenge other major energy users – both public and private – to commit to aggressive energy savings goals and policies at least comparable to the federal ones. Federal agencies might be encouraged (or required) to report on these positive “spillover benefits” from their policies and programs, and should get some recognition for their market-leading actions that save energy outside the federal sector, as well as for savings in their own facilities and operations.

- Support state and utility energy-efficiency and demand-side management (DSM) programs. Utility DSM programs have been among the most effective public tools to reduce energy use, and many federal facilities have taken advantage of state and utility energy-efficiency rebates, technical assistance, and other programs. Conversely, the federal customer base has been essential to building the important infrastructure of energy service companies and other energy service providers. When utilities and state regulators are considering new or expanded DSM programs, all federal agencies and their representatives should strongly support cost-effective utility DSM programs and the associated surcharges to pay for them.

Conclusion

Federal energy management is only one piece of the solution to the economic, environmental, and security challenges to clean, reliable, and sustainable energy use in this country. But the federal government, as the nation's and the world's single largest energy user, can and should be the most influential model for using advanced energy-efficient technologies and practices. Congress has an important role to play. First, sustained congressional oversight is needed to focus agencies' top management attention on maximizing energy savings. Second, sufficient funding is needed to pay for the necessary initial costs to achieve long-term savings, along with continued support for alternative financing mechanisms. Third, new legislation could expand the scope and savings of federal energy management activities to all large federal buildings, other facilities, and to federal vehicles and uses of "mobility" energy. These actions will save taxpayer dollars, help save the planet, and at the same time inspire many others to act.